



# Controlled traffic for organic farming

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# Principle of controlled traffic



permanent  
track

permanent  
untrafficked bed

permanent  
track

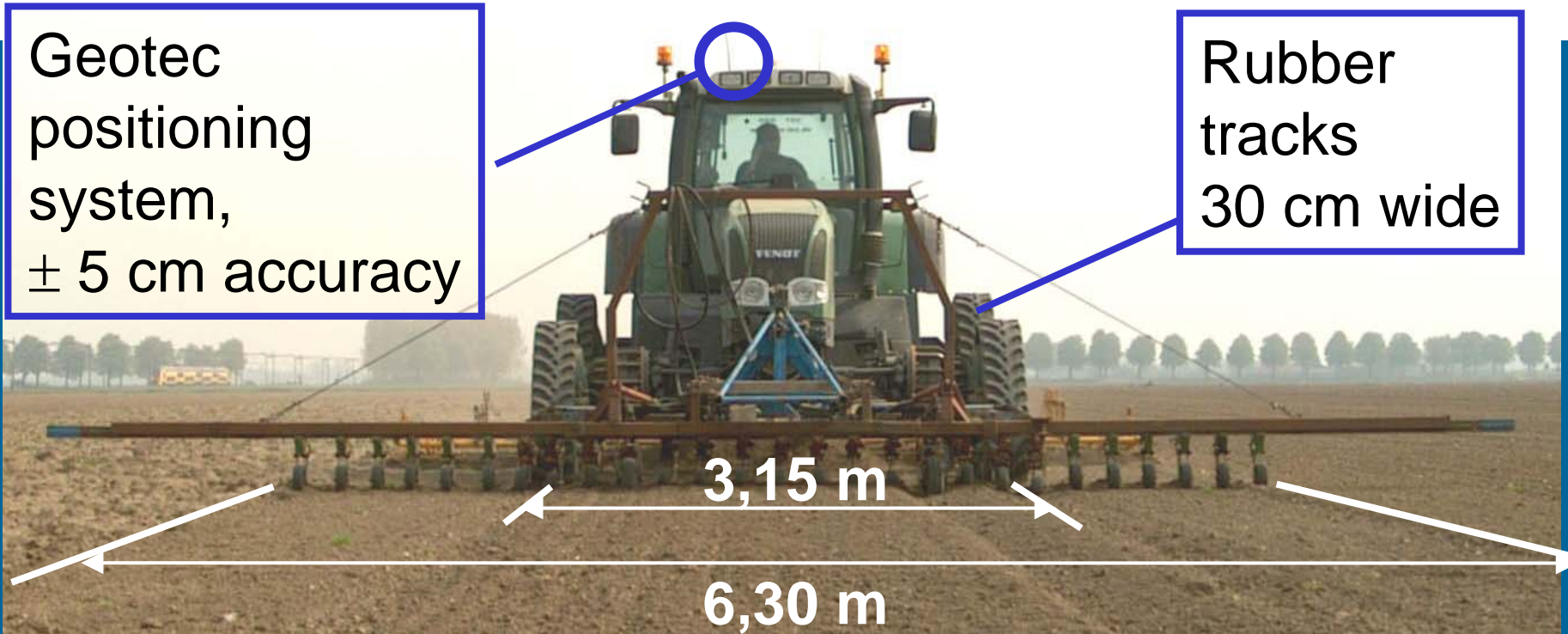
# Results of research in the 1970's en 80's

- approximately 3 x as much workable days in spring
- 40% more air in wet soil (field capacity)
- 12% more fine (clay)soil in potato ridges
- up to 10% yield increase for root crops
- 15 - 50% less energy requirement for soil tillage
- in that time economically not feasible

# System BEKO (Korteweg & van Beek)

Geotec positioning system,  $\pm 5$  cm accuracy

Rubber tracks 30 cm wide



Front-mounted goosefoot cultivator for extra weed control in spring (stale seedbed)

Ploughing and harvest not (yet) in controlled traffic system

# Expected benefits of CTF in organic farming

- Excellent soil structure
  - high uptake efficiency of nutrients, especially Nitrogen
  - less greenhouse-gas emission (methane, N<sub>2</sub>O)
  - vital crops, less susceptible to diseases
  - high crop yields
  - good product quality

# More benefits of wide-track traffic lanes

Flat soil surface  
without wheel ruts

Good tractor  
stability: accurate  
control of position  
& depth

More workable  
days

Increased potential for:

- stale seedbed method
- timely and precise mechanical weed control
- intra-row weed control
- liquid manure application in spring

# Expected benefits of accurate GPS

- makes controlled traffic possible
- large working width possible without problem of connecting to adjacent rows
- high forward speed possible
- possible to work at night

High productivity of labour and machinery and high annual use of machinery

# Current research (BEKO system)

- Objectives
  - Give proof of benefits in practical organic farming and further development
- Activities
  - Compare CTF and “conventional organic farming” in 4-year field experiment
  - Economic calculations
  - Develop soil friendly harvest & minimum tillage in system
- Research partners
  - Wageningen-UR (A&F, PPO, PRI) and Korteweg c.s.